

**PROGRESS REPORT OF
WOLF POPULATION MONITORING
IN WISCONSIN
FOR THE PERIOD
APRIL – SEPTEMBER 2005
& ANNUAL SUMMARIES FOR 2005**

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February 15, 2006

ABSTRACT

Annual spring and summer survey activity was conducted in Wisconsin in 2005, as has been done since 1980. Twenty-three wolves were live-captured and radio collars were placed on 17 in 2005. It appeared that at least 113 packs occurred in the state, somewhat higher than the 108 detected in surveys in winter 2004-2005. A total of 45 wolves were monitored with radio telemetry during the summer survey period; 3 died and signals were lost on 5 wolves during the summer period. Dispersal activity was detected in at least 7 different wolves; a wolf from northwest Wisconsin dispersed at least 114 miles south to the Wausau area before losing its signal. Wolf pups were detected in 25 of 45 wolf packs, and it appeared that pup production may have declined. Reports of wolf observations were received from 32 Wisconsin counties. A total of 65 wolves were found dead in Wisconsin, and important mortality factors included depredation control activities, illegal kill, vehicle collisions, and mange; illegal kill may be increasing.

Wolf depredation occurred on 25 farms and 29 wolves were captured and euthanized on 14 farms. Wolf kills included 31 cattle, 3 sheep, 3 horses, and 17 dogs (plus 6 injured).

INTRODUCTION

Wolves recolonized Wisconsin in the mid 1970's after an absence of about 15 years (Wydeven et al 1995). The Wisconsin Department of Natural Resources (DNR) has monitored wolves since 1979, and population monitoring efforts were reinforced in the 1989 recovery plan (Wisconsin DNR 1989), and the 1999 wolf management plan (Wisconsin DNR 1999). Monitoring in spring and summer consisted of live trapping, radio collaring, radio tracking and howl surveys. Winter monitoring includes snow tracking of wolves, radio tracking of collared wolves, and estimations of the state wolf population (Wisconsin DNR 1999). Surveys from winter 2004-2005 indicated a state wolf population of 425-455 wolves, and 414-442 wolves existed outside of Indian Reservations (Wydeven et al. 2005). This represented the second year the wolf population exceeded its management goal of 350 wolves outside of Indian reservations. State delisting was completed on August 1, 2004, and wolves were listed as Protected Wild Animals at that time. The WDNR is still waiting for federal delisting before more flexible management can occur in the state.

The U.S. Fish and Wildlife Service down listed wolves in Wisconsin from federally endangered to threatened on 1 April 2003 (Federal Register Vol. 68, # 62). Therefore, authority was provided the state of Wisconsin and tribes to use lethal control on problem wolves. The federal delisting process was begun in July 2004, but a federal court in Oregon reversed the 2003 reclassification, causing wolves to again be designated federally endangered on January 31, 2005, and tabling the federal delisting process. As a result of being relisted as endangered, the Wisconsin DNR was required to obtain a special permit from the U.S. Fish and Wildlife to conduct lethal control activities on problem wolves. A special subpermit was issued on April 1, 2005, allowing WDNR to remove up to 34 problem wolves at depredation sites. On September 13, the subpermit was rescinded by a federal district court in Washington, DC, after environmental groups sued over the lack of a public comment period for issuing the subpermit. The WDNR then applied for a new permit, which is expected to be issued in early 2006. During most of the depredation season in 2005, the WDNR and its' agent USDA-Wildlife Services, did have authority for lethal control activity.

The current report covers wolf population monitoring activity from April through September 2005, as well as annual summaries for depredation, mortalities, and total captures in 2005.

ACKNOWLEDGEMENT

Many people assisted with wolf population monitoring in Wisconsin. DNR pilots who tracked collared wolves included Phil Miller, John Bronson, Joe Sprenger, Mike Weinfurter, Paul Anderson and Dan Cardinal. Dick Thiel, with help from Ellen Heilhecker, and staff at Sandhill Wildlife Area monitored wolves in central Wisconsin. Shawn Rossler of Central Michigan University studied wolf reactions to dog shock collars as a means for depredation reduction with Dr. Thomas Gehring and Mike Rossler. Jane Wiedenhoefst coordinated data analysis and summarized survey information. Kerry Beheler, Dr. Julie Langenberg and Nancy Businga coordinated health monitoring of wolves and conducted necropsies on non-collared wolves. Randy Jurewicz coordinated transport of wolf carcasses and wolf depredation payments. Ron Schultz, Buck Follis, Adrian Wydeven, Todd Naas, and Greg Kessler conducted wolf trapping in northern Wisconsin with the help of, Tom Matthiae, Dan Eklund, Nancy Warren, Nancy Businga, Trish Fry, Pat Beringer, Tia Kropf, Colin Benell, Lisa Brien, Chris Repking, John Schmidt, Walt Rasmussen, Jerry Petruzalek, Patty Helms, Peter Wydeven, Gail Mathews, Darby Murphy, Kerry Martin, Pam Troxell, Mike Zeckmeister, Mike Ravet and Ron VanderVelden. Radio-collared wolves found dead in

the field were examined at the National Wildlife Health Center in Madison by Dr. Nancy Thomas, Dr. Valerie Bochsler, Dr. Kathryn Coyle, Dr. Louis Sileo and coordinated through Dr. Grace McLaughlin. Dr. Dorothy Ginnett conducted research on heartworm in wolves. USDA-Wildlife Service persons were involved in investigating wolf depredation, providing advice to owners of domestic animals, and trapping problem wolves under the direction of Bob Willging (northern Wisconsin) and Chip Lovell (southern and central Wisconsin), and included Barry Benson, Phil Peterson, Jim Rollman, Ed Zydzik, Eric Fromm, Kelly Thiel, Dave Ruid, Dan Hirschert, Jeremy Irish, Jim Miller, Mark Kerr, Mike Edwards, Chad Alberg, Steve Krueger, and DeWayne Snobl. Others assisting included Cindy Mueller, Chris Giese, Lance Burns, Mark DiSalvo, Dave Oginski, Norm Poulton, Sarah Boles, Chris Schultz and others.

Wolf population monitoring funds were provided by U.S. Fish and Wildlife Service, Endangered Species grants; Federal Aid in Wildlife Restoration Project W-154 R (PR Funds); Chequamegon – Nicolet National Forest; Wisconsin Endangered Resources Check-Off And License Plate Funds; Mike & Carol Held; Timber Wolf Alliance (TWA) Adopt-A-Wolf Pack; Timber Wolf Information Network; Defenders of Wildlife; and National Wildlife Federation. Radio collars were donated by Central Michigan University, Ho-Chunk Nation, Chelsea Nehm, Marshall Middle School, North Lakeland Elementary School, St. Mary School, St. Mary School 7th grade, Kya and Larkin Hooker-Moeriche, Linda Nelson, Nicolet Elementary, Half Moon - Louis Family; and Sheda Mohardt.

METHODS

Wolves were live trapped and radio collared following procedures of Mech (1974) and Wydeven et al. (1995). Most trapping was done from early May through mid-September mostly using foothold traps (Kuehn et al. 1986), but some limited trapping was done with cable restraints in winter (Olson and Tischaefer, 2004). Experimental trapping was done with a self-attaching collar that would be attached to an animal after it walked through a snare-like device. This new method will be discussed further in future reports. Trapping effort was reduced in spring and summer of 2005 due to lack of funding. Once radio collared, wolves were normally located once per week by WDNR pilots, but due to lack of funding during the study period, wolves were located only once or twice per month over the summer and fall 2005.

Shawn Rossler and Tom Gehring conducted research on potential use of shock collars to deter wolves from specific areas (Rossler 2005). This research was a follow-up to previous work by Jason Hawley (Hawley 2005), and earlier work done by Wisconsin DNR (Schultz et. al. 2005). They placed shock collars on 5 different wolves in 5 packs that were also fitted with radio collars. Two other wolves in two other packs were fitted only with regular VHF collars. Radio collared wolves with shock collars were contrasted with collared wolves that did not have shock collars. Sites were established in shock collared and non-shock collared packs using road killed deer to attract wolves to the sites. Shock collars with remote triggering devices were used to deter wolves from these sites during portions of the study. Details of methods and results of this study will be reported elsewhere (Rossler 2005).

Home range area for the summer period (15 April – 14 September) was determined from the minimum convex polygon (Mohr 1947). Isolated radio locations over 5 km from other points were considered extra-territorial moves as done by Fuller (1989). When 2 separate clusters of radiolocations existed with regular travel between them, areas in between were considered part of the home range regardless of distance, as long as both clusters did not occur in another pack territory. Home range areas were calculated for wolves that occupied stable areas, and did not include wolves that were dispersing.

Howl surveys (Harrington and Mech 1982) were used to determine pup production, location of rendezvous sites, summer location of non-collared packs, and to determine the presence of new packs. Howl surveys

are useful for determining occurrence of wolves and presence of pups, but are not reliable for an accurate count of wolves beyond 2-3+ pups and 2-3+ adults (Harrington and Mech 1982).

RESULTS AND DISCUSSION

Twenty-three wolves were live-captured in 2005 and released back into the wild, and radio collars were placed on 17 wolves (Table 1). Captures included 4 wolves trapped by coyote trappers or landowners, 6 captured by USDA-WS at depredation sites, and 13 captured by DNR, USDA-WS, and Central Michigan for research and monitoring purposes. The captures by USDA-WS at depredations sites that were released back into the wild were pups too young to euthanize. None were fitted with radio collars, and at least 4 may have been wolf-dog hybrids. Twenty-nine wolves and 6 probable wolf-dog hybrids were euthanized at depredation sites. The 17 radio collared wolves represented at least 15 different packs and one apparent disperser. Live captured wolves included 10 adult males (ave. wt. 80.9 lbs., S.D. 8.9 for 8), 3 adult females (66 and 70 lbs. for 2), 7 female pups (20 to 55 lbs. for 4), and 2 male pups (not weighed). One wolf was captured by a self-attaching collar, but its sex and age was not determined.

During winter 2004-2005 108 packs and 8 territories occupied by loners were detected across the state (Figure 1). Wolf monitoring work during summer, and depredation control work indicated that at least 5 packs of 2 or more wolves each, were missed during winter surveys including the Pokegama River pack in northwest Douglas County, South Range Pack in northern Douglas County, Lake Nebagamon Pack in northeast Douglas County, Venison Creek Pack east of the Chippewa Flowage in Sawyer County, and Caves Creek pack in northwest Marquette County. The majority of wolf packs continued to occur in the more remote areas of Zones 1 and 2 in northern and central Wisconsin (Figure 1).

During the spring and summer survey period (15 April – 14 September 2005), 45 radio-collared wolves were monitored by the Wisconsin DNR (Table 2). Wolves were monitored in 38 or 39 packs, and 2 or 3 were monitored as loners. Wolf 454F appeared to occupy a fairly regular home range area in western Shawano County in the Embarrass River area, but it had not been determined if she was joined by any other wolves. The 38 packs monitored by radio telemetry thus represent about 1/3 of the known packs in the state (33.6% of 113 packs). Wolves radio tracked included 37 wolves and 32 packs in Zone 1 (northern Wisconsin), 3 wolves and 3 packs in Zone 2 (Central Forest), and 5 wolves and 3 or 4 packs in Zone 3 (central and western Wisconsin). During the study period, at least 3 wolves were known to die (462M, 481M, 393F), and signals were lost on 5 (036F, 248M, 355M, 523M, 560M). The loss of signals was higher than experienced in recent years, and may have been partially due to reduced aerial monitoring because of budget constraints. Wolf 248M signal loss was likely due to normal collar battery expectancy, and his period on the air of 5 years and 27 days represented a new record for monitoring period on a single radio collar. Wolves on the air at the beginning of fall were 31 in Zone 1, 3 in Zone 2, and 3 in Zone 3. During fall 3 wolves were collared from individuals caught in coyote traps (Table 1), and 2 Michigan collared wolves were found in Wisconsin, thus 42 wolves were on the air in the state in early winter. Sex and age of wolves monitored in spring/summer 2005 included: 21 adult males, 20 adult females, 2 yearling males, 1 pup female, and 1 unknown.

Mean home range size has been calculated in past reports using home ranges for wolves with a minimum of 20 radiolocations during the monitoring period. No wolves had 20 or more radiolocations during the monitoring period (Table 3), therefore mean home range size could not be calculated for summer 2005. Home range size for 16 adult females in Zone 1 ranged from 5 to 34 square miles, and 18 adult males ranged from 7 to 27 square miles. In Zones 2, 2 adults were at 4 and 7 square miles, and in Zone 3, 4 adults ranged from 3 to 11 square miles. The small home range on some adults may be due to most radio locations occurring near den or rendezvous site; all radio locations were during daylight hours and

generally from about 0900 to 1600, and thus were somewhat biased toward times of day when wolves are often resting near home sites.

Dispersing Wolves

Wolf 388M, was captured as an adult male initially on 25 July 2001 in Crex Meadow Pack in Burnett County. The pack occupied a territory that straddled both sides of the St. Croix River in Wisconsin and Minnesota, but after a while remained mainly in Minnesota. He was last on the air on 8 November 2004 in eastern Pine County, Minnesota. Wolf 388M was captured on a farm causing depredation near Cloverdale, Minnesota on 31 July 2005, about 17 miles northwest of his original capture site, and 12 miles north of his last home range area.

Wolf 462M, was captured as an adult male on 1 June 2003 in the Black Lake Pack area of Sawyer County. In fall 2004, he began traveling south of his home territory, traveling as far as 26 miles to the south in western Price County. Although he continued to visit his home territory, he also traveled east and south of the Black Lake area. It appeared that in winter 2004-2005, the Black Lake pack began to dissolve. On 13 July 2005, Wolf 462M was found dead along the Flambeau River, west of Fifield in Price County and 13 miles southeast of the Black Lake territory.

Wolf 518M, was captured as an adult male in the Smoky Hill Pack of southwest Bayfield County on 31 May 2005. He was one of 5 wolves fitted with VHF radio collar and experimental shock collar (Rossler 2005). The wolf began spending time west of the Eau Claire Lakes in southeast Douglas County, and on 30 December 2005 was found severely injured in southern portions of the Shoberg Lake Pack territory, and was euthanized. This last location was about 9 miles northwest of his original capture site.

Wolf 523M was captured as an adult male in the Bearsdale Pack area of western Bayfield County on 24 May 2005. He was also fitted with both VHF and experimental shock collar (Rossler 2005). Wolf 523M remained mainly in the Bearsdale area, but appeared to begin to disperse in late August 2005, and was last detected on 31 August 2005 in northern Sawyer County, 14 miles to the southeast. He apparently dispersed out of range after that date.

Wolf 560M was captured as an adult male in the Brush Creek Pack area of Ashland County on 26 June 2005. He was detected 8 miles to the north on 29 June 2005, west of Copper Falls State Park. When next located on 18 July 2005, he was located 40 miles southeast of his capture location in northeast Price County. Wolf 560M was next found on 2 September 2005 in eastern Marathon County, 78 miles south of the July location and 114 miles southeast of his initial capture site. The wolf was not found again, but apparently was doing some extensive movements, and probably was not originally from the Brush Creek Pack.

Buffalo County, Female wolf was apparently killed by a vehicle in northwest Buffalo County on 27 October 2005 near the Tiffany Wildlife Area. The location was about 53 miles west of the nearest pack.

Grant County, Adult male wolf that was apparently shot to death was found on 30 October 2005. The location was about 92 miles south the nearest known pack.

Summary of Howl & Pup Surveys

Howl surveys were conducted in 39 packs during the study period, compared to 45 packs in 2004 (Table 4). About 35 to 39 pups were heard in 39 packs, or about 0.9-1.0 pups per pack, but many packs were not

adequately surveyed. A total of 35 pups were observed in 12 packs for an average of 2.9 per pack, but the Skinner Creek Pack was suspected of containing wolf-dog hybrids. If this pack was not included, 25 pups were detected in 11 packs or 2.3 pups per pack. Total pups detected were 56 to 59 pups in 25 packs (not including the Skinner Creek Pack), or 2.2 to 2.4 pups per pack. This compared to 96 to 101 pups detected in 2004, and average of 2.8 to 3.0 pups per pack. The lower number of surveys partially reflects reduced funding and intensity of surveys, but lower rate of pup observation per pack may indicate reduced pup production or survival. Wolves were heard at 42 of 611 survey stops for an overall success rate of 6.9% compared to 10.5% success rate in 2004, also suggesting possible decline in pup survival.

Reported Wolf Observations

A total of 62 and 74 observations of wolves were reported respectively for April-June and July-September quarters in 2005 (Table 5, Figure 2). This compares to 59 and 52 for the same quarters in 2004. Although in 2002, with about 25% less wolves in the state, the reports for the same 2 periods respectively was 75 and 84 wolves. Although most reports of wolf observations on Figure 2 were in areas of known wolf packs in northern and central Wisconsin, several counties with high wolf densities such as Lincoln, Sawyer, Bayfield and Jackson Counties had few reports of wolf observations. Wolf reports in southern Wisconsin probably represent loners, although some may include misidentifications. Wolf observations were reported from 32 Wisconsin counties, with highest report rates for Iron (26), Price (17), Vilas (16) and Marinette (10) Counties.

Wolf Mortality and Health

A total of 65 wolves and 8 probable wolf-dog hybrids were found dead in Wisconsin in 2005 (Table 6). Also 3 wolves collared in Wisconsin were found dead in Minnesota. Thirteen of the wolves found dead in Wisconsin were being actively monitored, and 2 of the wolves found dead in Minnesota were actively monitored wolves in Wisconsin that had a small portion of their territories in Minnesota. Mortality factors among the actively collared wolves included: illegal shooting 5 (33 %), illegal snaring 1 (7%), mange 3 (20%), euthanized at depredations and human safety concern 2 (13%), euthanized after being seriously injured 1 (6%), and unknown mortalities 3 (20%). Two of the unknowns had not been necropsied at the time of this report, and will eventually change the final results.

Among the overall sample of 68 dead wolves mortality included: illegal shot 12 (18%), illegal snared 1 (1%), vehicle collision 11 (16%), depredation control activities 30 (44%) (29 in WI & 1 in MN), mange 5 (7%), euthanized with serious injury 1 (1%), and unknown 8 (12%). Eight wolf-dog hybrids found dead that were initially considered possible wolf included 6 that died from depredation control activities, 1 that was shot, and 1 that died from unknown causes.

About 26% actively monitored collared wolves died from natural causes, 54% died from human caused mortality, and 20% were listed as unknown. Only 9% of the overall sample was apparently due to natural caused mortality, and 79% was due to human caused mortality. The overall sample of dead wolves was biased toward human caused mortality such as euthanized depredating wolves and road killed wolves.

The 29 wolves euthanized at depredation sites in Wisconsin included: 10 adult males, 6 adult females, 5 yearling female, 5 pup males, and 3 pup females. Thus 21 of these wolves would have been present in winter 2004-2005, and would have represented about 4.9% of the winter wolf population.

Five of 15 captured wolves examined for mange, had some level of mange infestation (33%). In recent years mange had been more prevalent in the Central Forest, but no live-captures and collaring occurred in

this region during the study period. Blood samples were collected from several wolves and will be reported in future reports.

The 13 illegally killed wolves (19%) represent a higher rate than recent years. In 2004, 8 illegal kills (12%) were detected and in 2003, 9 illegal kills (17%) were detected. The overall rate for 2005 may increase because several specimens have not been necropsied. Percentage illegal kill among actively collared wolves of 40 % in 2005, is slightly higher than occurred in 2004 (31%), and illegal kill for 2005 may still increase because some specimens have yet to be necropsied. The record illegal kill detected in Wisconsin was 16 in 2002, and the final figure for 2005 may be similar. Illegal kill may have increased from 2004 and 2005, but will not likely exceed the record rate in 2002.

Wolf Depredation

Forty-five cases of wolf depredation on domestic animals were recorded in 2005 (Table 7). Total depredation included 31 cattle killed (26 calves), 3 calves injured, 2 foals killed, 1 horse injured that had to be euthanized, 3 sheep killed (1 lamb), 17 dogs killed and 6 dogs injured. A total of 25 packs were involved in depredation on domestic animals, including 16 packs depredating on livestock (14% of 113 packs in state), 12 packs depredating on dogs (11% of packs), and 3 packs depredating on both livestock and dogs (3% of packs). This was the first year that a livestock depredation was verified in the Central Forest (Zone 2). Most livestock depredation in the north (Zones 1 & 3) occurred at the edge of the northern forest by packs that had just recently established. Wolf depredation on dogs included 13 dogs killed in hunting or training situations (mainly bear and one coyote), and 3 dog injuries in hunting situations. The other 4 dogs killed and 3 injured were attacks near homes or walking near the owner's property. A total of 25 farms in 14 counties had depredation on livestock, compared to 22 farms in 13 counties in 2004, 14 farms in 2003, and 8 farms in 2002. Total cattle kill by wolves of 31 in 2005 was an increase from 2004 (27), but not as high as the record kill of cattle of 37 in 2002; more liberal lethal controls in recent years have probably kept wolf kill on cattle down.

A total of 30 cases of control actions were conducted by USDA-Wildlife Services for wolf depredation situations in 2005 (Table 8). Complaints where controls were conducted included 16 farms with first time depredation, 8 chronic farms (2 or > depredations in last 5 years), 3 farms with first-time wolf threats, 1 chronic farm with wolf threat, and 1 cases of domestic animal depredation with continued threat, and 1 human safety concern (bold wolves). Non-lethal methods were used at 3 locations and offered at 4 additional sites. Trapping was attempted at 24 locations, and captures included 29 wolves euthanized, 6 wolf-dog hybrids euthanized, and 5 pups released back into the wild. Distribution of wolf control cases included 22 in Zone 1 (northern Wisconsin), 1 in Zone 2 (Central Forest), and 7 in Zone 3 (central and western Wisconsin). Zone 3 contained 23% of the wolf depredation cases, although the zone held only about 4 % of the wolf population. A total of 137 individual complaints were received by USDA-Wildlife Services including, 58 verified (confirmed and probable) wolf attacks, 10 verified wolf threats to livestock, 1 verified human safety threat, 23 coyote depredations, 5 dog depredations, 1 bear depredation, 1 mink depredation, and 39 non-depredations or unconfirmed. Complaint counts are higher than case counts, because more than one complaint was received from some farms or home sites within the year.

PLANS FOR NEXT STUDY PERIOD

Efforts will be made during winter to observe radio collared wolves from the air and obtain accurate counts on these packs. Snow track surveys will be used by DNR and volunteer trackers to attempt to locate all non-collared packs on the ground, and obtain accurate counts on each pack. Intense collection of public

wolf observations will continue to supplement survey information, and direct survey efforts; as wolves start to spread into agricultural areas these public observations will become more important for assessing wolf abundance in areas that do not normally receive intense surveys by aerial or snow tracking. The wolf population estimation for winter 2005-2006 will probably be completed in late April 2006. The winter count for 2004-2005 will probably be adjusted because 5 additional packs were detected during the summer 2005 surveys. Efforts will be made to obtain a new permit from the US Fish and Wildlife Service to allow some limited lethal control work on problem wolves in the spring. DNR biologist will also work closely with USFWS biologist to begin a new federal delisting effort, which should be initiated in the spring of 2006.

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Note: This report is a preliminary progress report and should not be construed as a finalized publication. Some of the numbers of pack size, composition, population figures, and other information may change as more data becomes available. Persons wishing to cite figures within the report should consult with the authors.